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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR*	ATTORNEY DOCKET NO.
08/965,286	11/06/97	GOMI	P97.2608

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MM21/0407

EXAMINER

FAHMY, W

ART UNIT

PAPER NUMBER

2811

DATE MAILED: 04/07/99

**Please find below and/or attached an Office communication concerning this application or proceeding.**

**Commissioner of Patents and Trademarks**

# Office Action Summary

Application No.  
**08/965,286**

Applicant(s)  
**Gomi et al**

Examiner  
**Wael Fahmy**

Group Art Unit  
**2811**



☒ Responsive to communication(s) filed on Nov 6, 1997.

☐ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire three month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

## Disposition of Claims

☒ Claim(s) 1-10 is/are pending in the application.

Of the above, claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

☐ Claim(s) \_\_\_\_\_ is/are allowed.

☒ Claim(s) 1-10 is/are rejected.

☐ Claim(s) \_\_\_\_\_ is/are objected to.

☐ Claims \_\_\_\_\_ are subject to restriction or election requirement.

## Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on \_\_\_\_\_ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. § 119

☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☒ All ☐ Some\* ☐ None of the CERTIFIED copies of the priority documents have been  
☐ received.

☒ received in Application No. (Series Code/Serial Number) 08/762,779.

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\*Certified copies not received: \_\_\_\_\_.

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

## Attachment(s)

☐ Notice of References Cited, PTO-892

☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). \_\_\_\_\_

☐ Interview Summary, PTO-413

☒ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

EXAMINER: Wael M.Fahmy

Claims 2,8 and 10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 2, is vague and indefinite, since it is not clear what is meant by "...for taking out a colector..." also the word "connecting" should be changed to "connected". The same applies to claims 8 and 10.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-5,7,8 are rejected under 35 U.S.C. 102(b) as being anticipated by Magdo et al.

Magdo et al shows in figs.(4,7) a semiconductor device comprising two vertical bipolar transistor having different voltages formed on a semiconductor substrate (10) made by forming an epitaxial layer (40) on the substrate, wherein the first bipolar transistor has a first embedded diffusion layer (22) formed in an upper part of the substrate and of the same conductivity type as the epitaxial layer and having a higher impurity concentration than that of the epitaxial layer, the second bipolar transistor

1 has a second embedded diffusion layer (18) formed in the upper part of the  
2 substrate and of the same conductivity type as the epitaxial layer, and the  
3 impurity concentration of the second embedded diffusion layer is different  
4 from that of the first embedded diffusion layer. As to claim 2, the reference  
5 shows a further embedded diffusion layer (38) connected to the collector  
6 lead diffusion layer (76,90) and the second embedded diffusion layer (18)  
7 and having a higher concentration than the same. As to claim 3, the first  
8 embedded diffusion layers shallower than the second embedded diffusion  
9 layer. As to claim 4, the second embedded diffusion layer has a  
10 concentration at least as high as the epitaxial layer. As to claim 5, the  
11 concentration of the second embedded diffusion layer is lower than the  
12 concentration of the first embedded diffusion layer. As to claim 7, the  
13 reference shows the impurity concentration of the second impurity diffusion  
14 layer lower than the first and formed deeper than the first.

15 The following is a quotation of 35 U.S.C. 103(a) which forms the basis  
16 for all obviousness rejections set forth in this Office action:

17 (a) A patent may not be obtained though the invention is not identically disclosed or  
18 described as set forth in section 102 of this title, if the differences between the subject  
19 matter sought to be patented and the prior art are such that the subject matter as a  
20 whole would have been obvious at the time the invention was made to a person having  
21 ordinary skill in the art to which said subject matter pertains. Patentability shall not be  
22 negated by the manner in which the invention was made.

23 Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over  
24 Magdo et al.

25 Magdo et al discloses all claimed subject matter, but omits the exact  
26 concentration as in the claimed in invention. However it is clear that the

1 concentration of the second embedded diffusion layer is at least the same  
2 as the epitaxial layer and less than that of the first embedded diffusion layer.  
3 As to the particular values of the concentrations note that the specification  
4 contains no disclosure of either the critical nature of the claimed dimensions  
5 or any unexpected results arising therefrom. Where patentability is said to  
6 be based upon particular chosen dimensions or upon another variable  
7 recited in a claim, the Applicant must show that the chosen dimensions are  
8 critical. In re Woodruff, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936 (Fed.  
9 Cir. 1990).

10 Claims 9,10 are rejected under 35 U.S.C. 103(a) as being  
11 unpatentable over Magdo et al in view of Jennings et al .  
12 Magdo et al discloses all claimed subject matter, but omits the formation of  
13 third bipolar transistor having a different polarity. However Jennings et  
14 teaches the formation of a plurality of transistors (NPN and PNP) see col.1,  
15 lines 34-37. The reference also shows a third embedded layer (35) of  
16 opposite conductivity to the epitaxial layer (33). Therefore it would have  
17 been obvious to one of ordinary skill in the art to include a third bipolar  
18 transistor in the device of Magdo et al with an isolation region to separate  
19 the same from other transistors, since the prior art specifically teaches that a  
20 plurality of bipolar transistor can be formed on the same substrate and  
21 having different polarities.

22  
23 The following table shows the field of search for the claimed invention.

Field of Search	Date
U.S. Class and subclass:  257/370,378,566,574,575	4/6/99
Other Documentation: None	
Electronic data base(s): APS and IS&R	4/6/99

Papers related to this application may be submitted to Technology center (TC) 2800 by facsimile transmission. Papers should be faxed to TC 2800 via the TC 2800 Fax center located in Crystal Plaza 4, room 4-C23. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The Group 2811 Fax Center number is (703) 308-7722 and 308-7724. The Group 2811 Fax Center is to be used only for papers related to Group 2811 applications.



Any inquiry concerning this communication or any earlier communication from the Examiner should be directed to **Examiner Wael M.Fahmy** whose telephone number is **(703) 308-4918**. The Examiner is in the Office generally between the hours of 6:45 AM to 4:15 PM (Eastern Standard Time) Monday through Friday.

Any inquiry of a general nature or relating to the status of  
this application should be directed to the **ART UNIT 2811** whose  
telephone number is **308-0956**



**Wael M. Fahmy**  
**Primary Examiner**  
**Art Unit 2811**